I 8801-666I DERMENT-ACC-NO:

199935 DEEMENT-WEEK:

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Hologram recording material for gifts and

polymerizable chemical compound, an optical applications, etc. consisting of an optically

thermosetting epoxy oligomer and a pigment

INAENTOR: ITO H; KOME M; OE Y

PATENT-ASSIGNEE: TOPPAN PRINTING CO LTD[TOPP]

PRIORITY-DATA: 1997JP-325032 (November 26, 1997)

Αt 1999 18, 1999 A OPITAILI GC LANGUAGE BOB-DATE 50B-NO FATENT-FAMILY:

APPL-NO APPL-DESCRIPTOR :ATAG-NOITADIJ44A

1997JP-325032 A\N AOPIISIII 9U APPL-DATE

November 26, 1997

C03E1/051 S0060101 CIBB DATE IbC LABE INL-CT-CORRENT:

C03HI/02 20060101 CIBS CIES G03E7/029 20060101

ABSTRACTED-PUB-NO: JP 11161140 A

DOB-NO

sensitizer

secnițty

:BITLT

rurfrator, a

BASIC-ABSTRACT:

tonically an optical initiator and a thermosetting epoxy oligomer which is MONEFLA - The hologram comprises an optically polymerizable chemical

an optically polymerisable chemical compound, an optical initiator bonded to a pigment sensitizer. DETAILED DESCRIPTION - The hologram

the light initiator sensitive to the visible region. sensitizer makes radical polymerization when exposed to radiation. The pigment cattonic, obtical initiator generates Bronsted or Lewis acid, and activates polymerization. The than 100?C at normal pressure and is capable of radical point more droup(s) which is Iiduid at normal temperature and has a boiling ojetinic at least glycidyl and a polar group. The optical compound has combrises The oligomer is capable of cationic polymerization and .rezitiznez pigment soluble thermosetting epoxy oligomer which is ionically bonded to a e pue

paper, etc.

USE - Used as cover for magazine, gifts, credit cards, forgery

rransparency good weather resistance, resolving degree, diffraction efficiency, stability, ADVANTAGE - The hologram material has high sensitivity, chemical

material; (2) Substrate; (3) Sensitization Layer; (4) Protective recording composition of the hologram recording material. (1) Hologram app furmous DESCRIBLION OF DRAWING(S) - The figure is an explanatory drawing

rayer.

CHOSEN-DEWMING: DMd:I\S

and long shelf life.

prevention

CHEWICAL COMPOUND INITIATE THERMOSETTING EPOXY OLICOMER OPTICAL LILTE-LEEWS: HOLOGRAM RECORD MATERIAL GIFT SECURE APPLY CONSIST

DEBMENT-CLASS: A89 G06 P84 V07

COQ-E03D: Y02-Y01E; YIS-TOSC; YIS-TOSE; C00-D; C00-E; C00-E03B; CbI-codes:

AOJ-EOSC: EbI-CODE2:

STOWERAL.

Polymer Index [1.1] ENHYNCED-BOTXWEK-INDEXING:

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6660
DIG DIE DIS DAG DEO DET*B DOS D* 24 E* AF I*; COOO COBB*B COOO:
                                                            DI8*R
018 : DOI DI8*K DET*K: E6 8B LE: DOI E16 DS3 DSS DV6 D42: DOI
                                               Polymer Index [2.4]
                                                           B2516;
                                       B3235 B33151 K6616*K1
   KAP14 KA483: BAAAA B2441 B2414 B2403
                                                            6666B
  B4268; B6666 B4158 B4268; B6666 B4361 B4540; K6841*R K6160;
                                                      08518 66668
      018 : ND01: 06666 08640 08606: K6778 K9745; 06999 09029;
                                               Polymer Index [2.3]
                      T6666 FS213 FS200; K6841*E K6160;
                                                      :0000H
                                                         E30 E4I:
 018 : @0608 @0813 @08IA DOI DZI DZ4 DZA DG3 DII DIO DZ6 DZ8 D65
                                               Polymer Index [2.2]
                     K884.1*B K8.1803
                                    TS200; T6666 TS258 TS200;
                                                            TS213
       018 : @0055*B DOI D2I D23 @0811*B D24: H0000: H0011*B:
 6666T
                                               Polymer index [2.1]
                D16 D85 N* 5A R00916 10; A999 A475; A999 A71;
                                                          D&T DPO
D3T D4S D20 D62 D12 D84 E36 E00 ETT B0084S 240: D0T DS3 DSS D3T
                                                          DS3 DS5
 018 : DOI DIT DIO D20 D83 E40 B00518 S3: C140I C1388 C4054 D0I
                                               Polymer index [1.6]
                       D01*R D95 F08 F07 F17 F00 I* 7A; H0226;
                                                          D2.1 D28
018 : DOI DIS DIO DII DIO DIB DSO DS3 DSS DA2 DA8 D28 D27 D20
                                               Polymer Index [1.5]
                                          Folymer index [1.4]
                                                           19/798
   K6214 K6483: B6666 B2441 B2414 B2403
                                       B3235 B3315; K6616*B;
                                                            66668
  Bd268; B6666 Bd128 Bd268; B6666 Bd361 Bd2d0; K68d1*K K6160;
                                                      08518 66668
      018 : ND01: 03333 08640 08606; K3778 K3745; 03339 03029;
                                               Polymer Index [1.3]
          HO328; HO337*R; M9999 M2391; M9999 M2813;
                                                             11.5.4
 BOO410 8253; P1898*R P0464 DO1 D10 D11 D18 D19 D22 D42 D76 F34
                                                              E30
 Edl NY:
 018 : CT2\0*E CT228 DOT DIT DIO DS3 DSS D3T D4S D20 D60 D43 D83
                                               Polymer index [1.2]
                   K9734; M9999 M2391; M9999 M2813;
                                                     H0237*R;
                                                         1745 F.4 13
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078 : DOI DII DIO DS3 DS5 DA3 D45 E41: H0358: 50464*E D01 DS5

10/21/2011, EAST Version: 3.0.0.6

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CPI Secondary Accession Numbers: 1999-305248

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(A) 舞公福寺開公(21)

(19) 日本解析(JP)

0か1191-114-開発 日報15.0(6001) 事11為平 日期公(6A)

| | (夏 01 金) | ОГ | 6.潜の更來機 | 浆蓄 末 \$ | K航班 森 | | | |
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| | | | | 620/ <i>L</i> | | | 620/4 | |
| | | | 919 | LZ0/L | C03E | 212 | 120/1 | COSE |
| | | | | 1/05 | C03H | | 1/05 | C03H |
| | | | | | I A | 台灣經濟 | | (21) IntCL* |
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| | 版 五大 | 春柳祭(ST) | | |
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| | 無 米人 | 書師祭(SY) | | |
| | 內 北 会 上 表 は 現 | | | |
| 中源凸 | 母 I 备 3 目下 I 東台 20東台 落束東 | 1 | | |
| | 光杏 養母 | 春興発(ST) | | |
| | 号 L 器 3 目丁 L 東台 A 東台 路 東東 | | 日32月11(7991) 李 6 海平 | (22) 田瀬田 |
| | 并会无赖眼印颜凸 | | | |
| | 0000003193 | 丫頭田(IL) | 经搬货—322032 | 包备額出(IS) |
| | | | | |

体は韓国ムミゼロ市 【神谷の問題】(48)

な被具体調査舒みそれロホのとな計便変、準候計画、製 **劇器C44、水製の計気法存果の及計製機のさら、フツ窓** 高ブンドン第千葉とい返、光ヤーインとハマン群、光規 両、(*&&は)はは熱量人でやロホるれるい用い過ぎ人で ヤロ本型財力療材、北脚発本【理代徴数る专題の即発】 [10001]

【脚端な勝輌の肥発】 。体材製品Aそれロホの舞踊かれがかいのもし いな「原本能るする意料そうこる各字業音楽くそくせき (木キ) な(d) 概念継条色型ベ木ト語前 [9 更本能]

。特林製造ムでプロホの義語づめれずいの 3 しいな1単本轄6 する厳料をよこる表で素当系AやU Uて (人 (d) 所念散業 当卦 くれ / 5 語前 { 8 取 来離] れかに記載のホログラム記録材料。

たいCO9ついたI所水銀タエマ類似るマフタダン楽事光 ベニアジル(U) 概要効素色型ベドト語譜【「FJF本語】 *特殊場合をでいるの様にいなれ

すいのもしいを I 東水蘭るする激音を よこる名字並んや ニオーEバー() ヤンな (こ) 廃棄開光頭前【3原本館】

, 将林线插入 それロホの舞踊にかんかずいのよういな「取求虧るする質 容をよこるので所合かくなてリイおかま料験ペーイで渡

°łk

*性

林袋品ムセヤの木の練品によなはまり野水南るヤラム配縁村 許多くこるホワーケヒリヤジキホ工業AバーしょてX当 な(A)ーケヒリ大シキホエ野沿频機振躍 (A)原本語) とする解釈は1まだは2に記載の市ロアクム記録科は。 商料をとこるあプーケビリセスキホエが出機機器者表現 ○ 込(A) ーケビリ大ジキホエ熱小颗熱温繭【を原水離】

林銭品ムモヤロホの姉島の「原歌楽館るする遺替さしこる あつお問う出常品常で見つ上以000を量置くキホエ、な (A) ーケヒリヤミキホエ計小野機品前【2更末離】 *科林教派ムモヤロ市るやと知符

そうこるパブパち特性で合計マヤトコ中重都の一マセリ 大くそ本工が小野県、な(U)降郷都楽色掛くを下場両 2いないは特殊器マビグロ中でならゆる時 型的業当者くれトな道に影動プコ級商光財戸多階破開光

(U) 、5階級開送るで主発を矯え下がおうしる短イヤ テスマンプでるサミ小野おき合業マヤキなび及齢パカジで るサさ小計所を合重れないぞくるれる光線は線線放用計 なくとも1つ以上有する光重合性化合物と、(C) 化学 必多合誌味館不掛くイキエな諸声合意れなどそるるケ土 (B) 常温、常圧で液体でかつ常圧であ点が100℃以 、メーマヒリ大くキホエ針小野焼な額両合薫くたそれる を再上以間「3.3.2%でみる金融機器ペドトの次差小 でくじている時か単うがない製造(A)【「原本版】 【田蓮(0末龍培計】

れざ示開了当な様公号787k88度獲替料固米、嫌公 02 **も関い降体験場∆そとロホの**めれるす典器をムモへロホ 点は、一般に反射型ホログラムとして知られている。透 それの市立し対抗でせる投入され間的がの内容を通じい。 豆、た一。るいろれる成プリメルモやロ市壁微数料ルモ ヤロホるパミカボアサミ根人の本類縁延らべ向れり開き 光束技艺光崩變。6.4.6.馬頭5095000三位動物酵式0.5 **乳実(0)作業は、果該(05、パら荷回プでよぶムモヤロホ** こしてよるで原用る血板の光様及かし繊維の断盤の神線線 近る位置を対抗の数据、お次のさな機能機能、3.5で 馬牌フ不用飛ぐの底まムそ下ロホホれら燃料、コ次、る パさ終張了 し 4 時計集画で結核子の 4 光楽林 4 光照後 、いい3光崩後を光る光を提照3本線鉄道式ま 、光楽校

単枝、花光なイベイー当にのボードは、34側の光梯気の さん休息は、おこが製品。るかん置や腹部側裏等およ 例、神線経過の哲光器に置いる日本は代表を光様対全のる ・ヘルナ、J根別の酵素材料品を表一の光ヤーイ、よいり様 ークインイーコモの東米二、別れよいされこ。るいアホ 考慮品の章
2歳
(者図菜塾: 繊平肌内式) しトイヤスト 〒グットCでプロホ 「私太幺六、舊門事の施文(かれて) (1、北野原的係―るや関い繋引ムそやロホ【4000】 *タいてはころ母

公よろこるバア北景の社家安存界アッカホコ職員,これ ち、>Jを監はよこるAで内以mn 2 6 小具板機構、お 具数ペーコの具数主再、mn0を~02な(離れくバ) 謝動半のペーツの光主再、土以3000万mm/本00 0.3~0.000 2.減%制間空功率吸收回 、おご将杯練貼入 ● その本用30H3時。各なる水壁で3.2 c 台37時日用 更のう、休か香の等(静画半のペーコ光主件)離イぐ八 や対既再表域の光土再、率校社回のAそとロホゴノ蝶弁 ごの対象では、これる水炭でもこで不るお物様の高さで J 、J光速で製窓高コ光ヤーVで待き具成融発財更、は 「10003」ところで体層位相型ホログラム記録材料

°9112 れる朴樹や用点のハ(HOE)へか応用が期待され き蒸升의(GUH)トマヤストヤマッペイペーへの用趣器 車値目、51部の金用トイヤストモ、よりアいなら手法、66 **六る来出れるこる专興変を財立>なるこる专列機をA** ーコ光るや微値を敷、アペよコとこるや海径を離断す立 的間至る交異の率市団>交おブル機的字光コ中科線報店 ムミヤロホ、おんミヤロ市里排血剤料31計。るいアから 用体もコスタイーをの用面物造剤の等オーカイッジイク 、茶組配み、みなるころぶ言ろるなが動帯と維御のプロ 単くログミでやむ人でやロホ、六ま 。るいでれる財体が

等イマキ、トイプストデ 4 OPディスプレイ、考表の容結解、辞售み ① 小型であることから、その量れた重点性、対型になる。 业再の船本立元次とお∆そやロホ、来場【海対の来場】 [0000]

*942099

展問でくよの次、おうぐみら呼遠路過費光速用経垢人

。される滅後なんそへ口木壁肝 立所が、 れき経話で差の率計開や跡略干アしコきよのこ ホーケしチィノ迎の計点及びま、これ代略ィ遊の遊遊光は一 マしチい高の野点気、3.型も語区変素の一マしチ、3.共 3.0単行合連の一ケくチい高の計の以び1.7代略るな> 遊位表徴光の解析する 5ププト より来光二 、3 ブリ用る 株海路部場主光型のれ門。るる予修海路部階主光型るち プルムこるを媒計をAモヤロホアJコが同る例1箱、C なるかかりそーエハキメントソンプよおくてそくたれこ エヒー1、イーイリクタメジバーにリヤインキエ、イー かれぬれるでい経る率が認る一てしまのでどびよは、一 マンチガベンキエは強不と働てしる医療深に強をを合 **並なパチューケしチ針くイキエ店協不な諸百合重で得る** 平市田の支援間、よびしいののとは、六ま。るるで構筑 展調路が光想るきで終端ムモヤロホアっよコリニこるも光 親ケ系学光東光二、J 特勢51歳スそれの対2 きれこ、() たらないエーエバチメスト ハスンのよなバー いいべな 1/ニョ・N 、イーイリクを大小ぐキハロをくおよ例、サ は合み豚の廃設開合重光 メーマく チかく イキエ麻錦不立 出世合重のC2るなるこの平時期もよけ到別 、おりてし と何の1減、Cるが特替光型のてトをのごとは普爾。る いてれる不開で併公長るSBSBE部被害無人なよな 姓公ぞと86と99と飛行舒起水 , やは砂雑加みぐり口

をいるるその計画機能の反動機構、それとこるや事業 それ別空コ中ムモヤロホ、コるち、ケいブリ許多問問を いろい見もはなるむ効果、ぴたるや稀寄干者なーマリオ クーゴタきCAIの長城へ一つの長城上両, かなるサき 東班多綱空(よい野政大監,ののさるパアし青多製器高 、更別権高でかりませい相手出、ひむプバる連続や(増 公号の9015-4年開料) 評別経路人でプロホゴサム 合み財をとイーマリクタメルキメリホアノと場合施利政 50-88005号公報, ごろち、(婚公号20088-09 部開料) 桝丸峰龍脚沿地光六/1川3座被職光る減らかす 4合み膝の3部4やニャーヒハーリアで3騰くじを64 ヤーモ , 7 J 3 採杯る米出外数光ブ波燃器 [8000] 60

市型合連光な語Pが襲引のACヤロホブ製工製製の画 I

いなむ料多製処た點、アンドコ製間る心心【6000】

いてれま望祉上向の間一はな、ていさい封幹数器、こら き、るいプリ市を設問でいるとよりプルを組み経路がま 、こるよれ対応再の性的数、こちやしか自己常非プリル 習録われー人シャルセイニスーNールボ 、ののうるいフル

がは、よいもされらずが多れて作業、それなす。 るるも点 52 7年降光差式 J 2度主きパーマバルカイニヨービーじま 、ウル、るいアしする点題間をいるる光の対矩再、しょ 東公子野工型既な解除、ひれるでと要公子別訳た訟でお 今、thth級店ACペロホのみなこ。るいでれき家邸社 義(強や各687621-29問題は)アムメロギタや るdAAAホオーESTY当そでおも、(療会長0800 92-09開闢針)はは翻譯マビルロ中をならはくスピ マヤキュントジンナルホル/一E,2,(療込を082 て22-03個闘科) 体材経路ムモゼロホるなられ素色 3類ペポルなペーモ , 2 - 水無-ベネルホルヘーモーロ Ob ログサキハー7, 7, 6, 6, 7, 7, 7 (機込号 E 8 2 84-09問題科) 科林製品ムモヤロホるならへ降感触 3(株合力/ハニホリカマーカース/大槻ブノ 3(株郷菜 、社) 大門。るれる针んな特殊があくそロホナい用多い一下 ハバたバニコーNーじホ , ブリ 5 拝持立方勤を登得をか で存のは不知識してヘロホのとなる液性固高、悪動物高 「〇〇〇7」これに対して、翻環境特性に扱れ、かつ、 。 かいプリ許多点機関をいる

5光51的海南, 社监商队人员, 14将海绵市。14种、14种 林光窓のされこ、コさら、いなお字辞林光窓るきで虽然 06 みな点膜の対薬計びよは対気突がまるパン、Jと要处を を付している。また、新庭園内は、記録後に京都の大郎 点戲間でいるい悪池対既再、ぴのたこ、で料多研究のム それロホアいはコ野艦額取りよは既緩のマキぞせるなと 要かい剤の薬計Aそでロホ、ぴふらげる梨焼た鉱、ぶま 。いならなわれわなし埋隅コ恵の郷朴 、>豚や命巻類領 もは特殊表のこ、しかし、るれず特特される小用〉立る 時にによって、体種位相型ホログラムを記録するのに最 ストし出る単依市回い高の子、Lijisht光器の添くそそか 婚人口へ重。ふきアパら用動い機一位将林光器の条くキ 。57/17 J 許多点観問 05 そか随人口へ並びよな部級建成日熟 ,米班 , おブリ34件 林鏡端のムモヤロ市型財政財料なされのこ【3000】 "いつ繋ぶるこる例を

> 職変率社部(4高、代表で緩困)な終語に(をないを)な機の線 新干るパゟ魚沢コCなどmm I されなす 、い高や敷爆解 アンガコムミヤロホ型融造は1ムミヤロ市型排放機及、コ 母一。るさずれるこる代表プァよコ(、(9991) ell. Svt. Tech. J., 48, 2909, であり、コーゲルニック (H. Kogelnik) の理論式 [B 東ス的量宝の小変の率や訊るこます代籍を合め続く代籍 (合の設プリ等干が光されなす、電光器未びよは電光器 のムモヤロ市連動林、北隅変率消励。るまで勤るれち宝 特でよら草の本類経品にいび並革依他回されなす合階の光 棟入るれる夜回プでよい土谷花回のき、神ぶし蝶弁を主 路社回、J模別を東光二コミよるなコン同心製色でなる 強としては周折率変調がある。これは、記録媒体に媒体 るを強出きムセヤロホホれる気紙ア」と類【そり00】 。 ふき 7 蝶 サブ 払 式 の 試 公 式 れ さ 示 隔 ご 降 公 号 0 0

トS E E 管轄書配米別太岡、おA E Y ロホ壁棟図、立 ま。るきがなくこる許プトよご出ての民会なとれるパブ ç

- 、るいフリ市全点欠る次の對熱師、ひなるもで置機對壁 戸熱込料貼る专書界をパニ、アンは高いたこ。いな込む事実 逐节器 , J 五井马四条 7 J 3 附台为心量十代规 , 3 数观 宗人でヤロホ弘函数正るあう計の反映, 51共くるで許多 京殿同功製瓷塑塔のムモヤロホホバき減洗,プマよい用 動のこ、なるいアノ毗添き廃壁下の計乱気非、これかる す普応多点のこ、5たま、いなきでなるころ得多準確計回 い高い共とるなる要が位置が繋の>を、パら期間も対照 現の一ケくチの神光器、めぶるパブン中級ブリュスセク U.4 アーヤイトバタ間路の量子代面、1.3 種間とのよるい プパち示開了降公長028836業者特別米、らかな J·なJ 。るいプリを夫工るサ六件を基準推測プい用を供 合外るや許多類番茶コオーれるさどの一マし子赴ママキ 工体路不必額両合連むさま間勝利煙直然3つなかるサミエ 同ろ幅送率作級、J 3.減勝本基を終機機合業光も1-マしチおくイキエ环鎖不な鎖百合業、調題封壁巨操。& 4.714さ示開が辞公与2808-2平開時が1.43時公 号1805-2平開料立ま、降公号5088603離性 計画米びよは解公長2112464業情報国米、ブノム ・るなできべるパさ激励ともこるこはやす別の事校社
- **一回ファイン事業情報表の象ー、およそ々ロ本かれる別状** て用いる場合などに支険をきたす。また、これによって サち宝園の中人それかれ合ならよのとなトイで人トデア でてドックの用旗車切る限、対談る古、51共えるな31果 話るから用助を採环総加ムでヤロホの量をプリ状の皆欲 螺、紅衣衣を締のこ、なるあむケ鎖でよるころかつ符を 東京の恵野る代ファよいとこるヤク町全部経路ムマヤロ ホ 、いなか替べし実験なれる卵結像坐再のムそやロホホ 0.0 、より概定率市場のAモヤロホホノ加宗、よりブいお こは特殊婦子でカロホのこ 、い扱料率依社回の多、なる 本方のよするとよえも多点所の>をう点の3な計矩再や **対案性は特殊婦人でカロボカバさ示開すここ。られさ** 普京、ブロよい機関面全の線検気用が学かり振き長、は ムミヤロホるれき知味。るれる野社人とヤロ市壁肝団 新朴な他人永,ブァよコ光濃回Iの魅様効用計学か,C おフノ示開をお式置簿のAでヤロホな到元るならか科科
- *9112~軽4 殿門コハをコ卦矩再でよる計業計、となるこれとはし 研タ期却や3.1インコン代売の速速(A:パル出か返び、() あつ時合張の量千分割もフィレスコ胸の九回、ユキ。い 空体計気炎事界、J型事ご内糸ブJ3暦合当の量十位 題、よ鉄海完ムモヤロホガンリをてキれニェワー「るあ では合かれな反非、より5階の2葉。いなれる野心臓変率 発展い高、C ご気な合重の製芸るな3ーケく チバルの計

終店とそろロホのJ台語を呼渡網台運光のよけーア入チ

舞公長 92 58 5 8 5 8 2 8 3 1 1 1 0 0 1

- フルさ成落かるな際ンしキモインで、康小一セセ、願ン 02 トマンション J S 降級開合重光の承小じでで、プルングド 5662 X514464-1-01=-4-4441 -N 、ペキペイナイロイニーとおうこし 3階級関を放すの 深小マスエ婚コトセ、パチパチ、>剤料製器のう趣味器 樹木、よい合品のパヤバ、おおれこ。るバブれら用敷り さんに対象をとなるれたてトライノイスシャーを小と、キ くと脚中の型引動光むーマリオターマとしたの落れり 作製に放用されているフォトレジストである。 一方アク の3を割回イベリできむが、現在もから古き處は御 機力光葱の茶小〒A工殖丸トセ, 'ゆるいアパさ出用実'to Of 間勝力光窓のてトやなりが立映、すること【8100】 *9いしなどが確認な
- 科科練53.4.5.7.0 古いからは (14) は (なられかは台豚のメータしまかくイキエメータとした ペキホエのお固プ丑常温常はよい指許猛士 。 ふいアパ 6
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 と 「10015」この点を考慮し、さらに改良されたホログ する必要性が存在している。
- 大い千条学光・ケル用きパチ、VI及将林経瑞ムモやロホ盟 合重光六パさ真近の用経話AEVロホ、ブンクペ。パな 0c 開3路公長3228335業特替固米の3.【2100】 きついくこる料き率成社回い高わていまり継数数応式が ら示開フここ、アムは、小無い常非心登棄等、04式るす 要多間刺嚥成と小野梨代菜のでなれる小野の離勝くそ市 エのされの書気、おい合称ない用を採出勢でよな謝職を 条性および再現性が困難である。また、熱硬化性エボキ 計、J3度なる整準端の3次を利主を適路プでよる光調 前、コペスるを興略を計2版の一マくチ、コ共とるを要 多葉引な解説の3なで行う光の競技域の2個多合連くた キれびよは合重小れなで、よりSJ合品ない用き翻磨くを木 工計当物類代素、なる47式6当前金融階と各本工の版 OS れき憲法、果蓄のき、8名で地跡のEOO、Oさな10 断20周る見き掲載実 。るいてれる示闘は降公費を10 4 6 - 2 半開野な耐湿脂脂剤が透れ練速 4 6 7 口木る なる心体合産れたいと光ひよおーワしチがくイキエ麻動 不掛合重いたとそと間陥くキホエ 、コらさ【4100】 。るいてで野な獣間コいるコ出界再び
- にくいことや摩睺を形成しにくいことなど、作業性およ 壁下焼、ブリる本島のかれるや計器、ふるち、るいブリ **青さ点次る次コ台売前、のぶるるで融勝台標単層を利益** る专科架をパニ、J.熱同海技味等、. 六ま、いなきでなる 10 おくイキエな譜 百合進光 コロス くゃ リイケーケリカ 、お こる料き率依治回い高、J主が走コムモヤロホごれる施 班、コペットるを増退サーマし子計合重く大それの量千代 却い謂の答虫、これ共 3 る す 3 要 & 全規開光 to C なれこれ される。 しかしながら、ホログラム形成後に姿がった 班ムセヤロホ、(あかのもなし合品を解放開合業くれた たびよおーケし子針合重くをそれ、コにも外の階壁画る 機を5~107999号公報によれば、上記物質におけ **ネネる&ケ激鼓負近の点次端土プリ枚コパニ【€ 100】**

ΩT

(9)

フバさ特担う合語ペトトコ中面構の一ケビリャジを加工 ラム記録材料において、色素抽密剤(D)が、熱硬化性 トロホるなられる呼吸的素色計べ木トな誰便器削ブコ製 廃光財正多廃放開光(O) 、3 降放開光 6 を主発 3 嫌 ス トルはノンプを指さってスペンマを分を外が高き企業と下 それび返酵へないそるサさ小針寄き音廉へないぞくるれ 今米煮い緑根塩用計学小(O)、3桝合外對合産水るす 斉士以て「ひろうなやを合語中端小野く4キエな郷担合 重れたいそるまで上についり「な点物で出席でかす料面 な熱硬化性エポキシオリゴマーと、(B) 常温、常圧で 親臣合連くたそれるで再上以間 [3 3 > 2でかみる多葉類 報封ベヤトび返基小ジン(ペコ)中遊離が単字對響回繋落

图プ田常品常CAプ土以00以上でAつ常温常圧で固 ーアヒリトンチホエガ出処際、5℃差5秒後の1秒収額 【0022】翻家項2に記載のホログラム記録材料は、 、るもつ評析経路ムラヤロホるやる難替をくこるい

【0023】諸宏項3に記載のホログラム記録材料は、 よであることを特徴とする。

ぐキホエゴハ動無源音を非な(A)ーケビリ大くキホエ 05 パーロイベに含率人群の子、やさま暦コ外午代高の限想 請求項1または2のいずれかの発明に基づき、熱硬化性

哲小野県、また基づ世路のいかずいのなれたまでき、熟硬代性 、おは林林経話ムモヤロホの歳頭の4世代を経れ料は、 *るする歯科をよこるあずーマセリト

キホ工業AハーしェCス3次(A)ーワビリヤジキホエ

Uイおびまお館ベーマで雑、副4キニを滋養疾功(O) 解放開光 、きた基の即発のされやいのもしいなり原来 精、北洋林経馬ムモヤロホの雄島で原永輔【2200】 。るする歯科をよこるなプーケセリたく

と放酵をよこる名が証Aヤニュードバーリでであ(こ) 降散開光、さて基コ肥系の心がやいのもしいなり原本館 、まけず内銭店よどのホロホの表出づる原本額【3200】 。6 もと類符をとこる あで酵合かべやや

合力が大大人、多で基つ即系の化れやいのもしいな1即次 間、よは科林経路ムそやロホの諏島で東宋階【7200】 °9.6

●計イヤト、5℃基31世条(かれたいの3.1いな1)東末 間、よりは外親店よくとロホの海場を製水館【8200】

当かくたた、きで基コ関係でんれずいのもJいなI原本 額、お将杯銭店Aモヤロホの減品9配本稿(6200) *94.72 許多3.2.6.6.7.来当米AでUUYへ入べ(U) 解窓開業

100301 。各专3歲許多 よこる水で素当茶ベデベヤキ(たキ)祉(U) 麻窓樹素

市より2区、(6.5)区部拠るを開始多流階の「本製用経路 ムミヤロホるなる心科特経塩ムミヤロホの肥美本料1図

▽区間銀額機高き肥貼多蒸学光束光二の用線機A そでロ O2 (A) よ肥軽の舞踊!真永轄」されなす【1200】

.6450 さつに全の神狭本、果酔のは重多評価意識(なっるす 光緒 予觀無垢土む等各世発本【対キのペスるで死継予勝點】

基を存存録店Aでヤロホなる大の測販光潔さなJ>高な

對光型C且 , **// 建**以對宋安存果 , 對熱樹 , 對光樹 , 以 5

門、計気支持学がおるころるもと機能の子、プのような 5なアコ知義の直接間立てよのこむ世所本【9 I 0 0 】

同るマイ<u>畑</u>化規模の内型るれる料,できずなるこるす合 加量と数分解禁御、他なる化でと呼んのよいな付解/全

、なる付割々でおこ川南部舞片な内景―るや翔客なーケし

チターやくといののよるや解落よい製器落れーにいてや

木、Liffを対くたトるする(AUL)を素色くそくせき(木

そ) を用すてしる路透動の開始開光、式一。いなり雑客

まには緊緊係パーにパヤやホ、○○○よるや整路には監督器等

な情熱―おーケしチターヤントバ。るる社要込るヤコー

はブサら解寄る代友排活固の等系所設開や一をくトバブ

代カ豚科粥の等ーケしチコヤン用き蒸落むいが , 466 や

検察コーセタ系降級関 、一マくチターやく トバク 製器な

と腹、コ神媒や本葉経ののおき得るムミアロホ、おは、

再練店Aでやロホババら本開来頭、08者を将再練店Aで

ベロホの広土、J・4.3【酸糖るやろぐよ。3.5%解析即終】

辺灵や底窓館千代高を示き果故窓離され類、よ了 J 錦北

5、成党離千代却、013135を指摘を除る成 05つ

群な酵単、ti7発用の降器離千代素の設備、るいてれる

日本が用おのチェル子化高の腕側動、それ由野のとなり

図英の一ケリホタ上向の封持特殊、お ブリはお田高のハ

科林千代高の曲にはち、された腸の外類単細部でよまか

現場高の一てリホ、血型機等の機能解しよりていない問題

針光恐さま、さべ面の上向の事像隆宏瞥心及用酵再学取

四の雨窓館、5男間の媒幣や獺草の酢漁主のされ茶み丸

、おフィノはコスス学が光の潜台が教育、おか千代高の隊

恩齢、るいフ考フれら発帯が小千代高の解恋癖、ブノム

へ品語や小悪の歌歌楽神、〉なででかねるせきて瀬を登

灰冉の台葉中や更悪の副題台光磁は凝煌なでよのこ、る

水なよこるや出待い面表や階級開合重光の辺及未31中用

更の子、おプロおおは西郷面表の割やイスマイーやバ

くの針外要類重さま。るある合能るや華具の中灰大いい

みち、J34条3国表ムれトマーアリカが開室室や解恩

幹千代題、ブロおい (野工ヤーハイス水おいさき) 野工

レーンイエ、計工事量の部署者光器られなしなし、まい 1

で1の出れる本系報多題間のされこ、辛茲【7100】

。るるが点腺間でありてしまり出情、果郷にはないな 放出部件よてJ合振さられる、たま、CはてJ市を点限

[0000]

[8100] 。るいての始れるさい見込来

よることにある。

.....

、酵合かくキロイゴリな大原體、よい4る名、酵ハモスエ 類れいでて(冬火)いままなする高いのとなれーイニング プリートコルマ ブインタエリスリトール、ソルヒトール、 じエセング、マハロていーロチメじょ ノリーヤジンカテ -01 'I 'N-KSC##^-9 'I 'N-KSC# 52-5 'I 'N-KUY 64-4 'I 'N-KUYN ロエーモ 、I、ハーロリヤハキベットネ、ハーロリヤン 1207617, 11-EUXV1307UT, 11-EU そくてるロイス ブルービリぞくてるロイ ブルービリぞく イキエモイキ ノリーロリヤイノキエリイ ノリーロリヤイ ング・ルク・ルク・ルング・コート、ジェスト 40 パイオレット 10、ローグミン 1 20F、C・1・アンプログル合物、例えば、エチレングリコール、ジェオト 40 パイオレット 10、ローグミン 1 20F、C・1・アンプログル **イゴリホ滅遺迹 、払いるさ 、一マしチハニゴ点断高の等** ハアミド、2-ヒドロキシエチル (メタ) アクリレート リイアンイナヤマ、メミヤハリイヤ(セス)、婦ントレ ア、鶏ベビセト、鯖ハリウヤ(や×)、まにお出れ具。いる よるフゃんケ牌合脈のされこかま、ぐんかのもせ合き ーマしチバニコ銀首を30個の一マしチバニコるあて錯首 「、0.6.7のもむき土以勘! とろうな心を合詩味強不の 計ペイキエコ中型単重構、よりアノ 4献合小針合重光な錯 [n台重4/たぐそ(日) 代別るい用づ世終本【EEOO】 。るきずれよこる軒でより高及のとーケビしたく キホエ 5供合小るやすき基業解掛くたト、よば式るを入 **乾コームにいをくき水エの出土を歪端が掛くをとのらび** こ。いないてのよるれる歌劇コられこれるきてなるこる 刊率を等差百合く下下展金融各の反差契部ムウニホバス 、臺灣県ユワニホス市、基しとて、基くホバス、基小と そホルな、わプリコ基際機型ペカト、ウェ【2600】 *あるできることい用でかれ合脈の土以断2の等な こ、六キ、いなおでのよるれる金剛コられこ、パるるか 3な(建築計本日)00E-Sd83分(投資計構業)080S .001272, £1417, 1413, \$5100, 667 (Dow Chemical 社) 冬DB 500, 406, 4 0097, 6099 (CIBA社) PMM661, 664, 、ト809、ITO34ibleAや(並ぐをホエバエぐ外 断) 10011,0101,6001,7001,40 01,5001,10014-cat,38秒率多品机 市、J 3 阿科具 。るれき意識でよい因及合語の 3 ベリドリンとの紹合反反により製造される。 コロロイスエス結号オイバーノェムとス類をの参引モロ人 森木、FAMーしょてA当森木、RMーしょてA当森木 、8 パーしょてスコ恋木 , U A パーしょてスコ恋木 , A バーしょくたヨ森木、Aバーしょくたヨ小子ロで、S APLICKS, EXPLICAB, EXPLICA は、例えばピスフェノールA、ピスフェノールAD、ピ アノ 3ーケトリャンキホエ針外類機の常艇のこ。るき でイオン性新羅基を導入することによって得ることがで ーケヒリ大くキホエ計公野機の常能、よ」ーケヒリ大くキ くとも 1 個以上有するカチオン重合可能な無理化性工术 なやっさき基準解却くれ下び返還れなくじでは中意群立 単プ封落阿製膏(A)代面るい用で肥発本【IEO0】

20 K-741, NK-1836, NK-3988, NK--PIP' NK-LIP' NK-P' NK-I38' N 0' NK-76, NK-382, NK-1056, NK 3' NK-1055' NK-1450' NK-501 40' NK-123' NK-1238' NK-220 6' NK-719, NK-6, NK-85, NK-10 日本感光色素研究所社製のNK-863、NK-398 、おいてしる例本具の素色系ペニアシ、たま【7E00】 。いないでのよるれる医療におれて、ひる ッドレッド52、ローグミンSなどを挙げることができ 1' D3>26' D-45>46' C' 1' <-549 イベイトペーン·I·O DV1・E11ナベイントルド DYCHA YANDON PRESENCE OF MENDER ロ 、くくロスリエ 、くくちエ 、く トサイヤハて 、 り 1 く ミルーロ `8ベミルーロ `9 I I ベミルーロ `む9ベミ FCC, 0-837110, 0-837123, 0-8 同本具の業当系ンテンサキ(たモ)、*** 「も こ 0 2 0 3 1 。るちづなるこる科学 多帯素母系 ソニアンヤーロ 、素母系 れいキス 、素母系 ム やUUTOX,素色茶ベニT心,業色茶ベデベサキ(お 0€ キ) 、おりて J と所認能素色素が繋んたトな消 下認能では、 東東光路 | 多階 治開光 (U) 代版 (D) 2 日 (C) 1 日 これなれてのよるれる玄関のろれこ 、沈るきでなるこる刊挙を挙訟イーネサルでロをれてや キヘ ,型イーエススキスロネルスサチヘ ,型引ゃてそホ よなどのヨードニウムのクロリド、プロミド、あるいは クニューモ (パニェくロロケー d) X3 , Aケニューモ (1/==C1/4K-Het-q) X3 , A4=4-E (1/ ニェヘロイニー用) スツ、ムヤニドーモ (小ジニヤー 3) 1/2x4 '74=4-E1/1113 'Y4=4-E1/ 02 ニュベジ 、別太内 、桝台外の練品の . (7791) 70 ELTH, Macromolecules, 10, 13 例の謝ムヤニドーヒハーリアでるれるい用で開発本。14 Jを表が型ムヤニドードバーリアできずす。 からきず カムこる利率を楽器ムヤニヤバ下部ムヤニトマナ、望み

るれき宝刷コされて、みるきつかくこる料学タイーイリ して(8x) マイーロリクマイコロてい木は六まイーマ (144 (4×) ジバーにじせくてもエじホ まり> J 生技 、さま。るなら刊率は容潔小子ス工糖小リイヤ(4×) でおいがし子の等ハーロキ×じくカテロやシじイ、ハ 一くキマグロセンジ 、バーくをマグロセンジ、別条例

ヤニヤヤジ、副ムヤニホハス、副ムヤニキーヒ、ソジヤ

Uイー 2級電小キメしてロてUイ、中盤と一つて提到え

(4) ではいの1、2、283 (1989)に記載される化合物、例

⇒ Notoford L 、おプリS降級開光る下主発を強木ト

なび及動小たなそるサら当計計器を合連小たなそろるれる

※器33 製機域用計学件(C) 代海の関係本【4 € 0 0 】

1(よ)> Jを増出マテスマンマスを出き出る合連マヤキ 01

1121209

- [ペテリキエ (ペデリニリヘキー (HI) カーハキエ T 3-31-5-113-201-8-15-43-E 7 0 1 1 1 9 1 - 1 1 未開軸

というのよるれる宝刷コネルニ、みるきつかとこる科学を 挙ィミロて ムヤリヤヤキルニュベジー己 , タールキエ ーモー [イイキン [ベデリニジリンマキーターソキャータ

込まります。 ペープ・ス・プレンス (10039) は、エリア しょうしょく (10039) は、エリア (100399) は、エリア (10039) は、エリア (100399) は、エリア (100399) は、エリア (100399) は、エリア (100399) は、エリア (100399) は、 エの国際開業直封マキトのこ、でよび3こるサ各科時以 ーテたいたくキホエ針小製薬るあプーセントバる麻塞脚 業色型ペトト、私れよい関係本のとよのこ【1400】

.6874326+30 至る小更感高の科材経話人でペロホの暦──? 1, 7 次土

. 65573355555505888888803803 な限11周小類、所機移動製、廃土禁合重然ア3周3要& 、よいは特殊語ムモヤロホの肥張本いるち【SPOO】

カコナン海差のとなムバトマパテスエリホ、豚イーイリ 06 一日 ムヤリンヤキアインハキエーモー[パニキエ[パ でや×小キ×じホ、焼イーホホーなじホ砂焼スそれ、ブ い用き始手工業の成公の3なーを一に一い、一を一に ハーロ、ーキーにイゴス多新光想六軒ブJ合脈で合門の 第日、J内部宣演を公み各のされこの記土【E Þ O O 】

るい用きとなべて社やムルトへのとなイーイをてイテン イキエリホおさまハーヒハヤハニヨリホ ,マデリニヨ外 型()ホノイニコル型()ホノストマイヤ()ホよど16名。(O) も見い。保護機引には、例えば上記の基礎とと同等なも ア付班さ4階略界ブリ 4期間数条道はには W光速、荷 ○こ。 る下郷計を「南無田線店Aででロホ、J販売機

ンス、8ーをいじてスユーゴ、アーモミ、おる光ヤーレ スパラ無残らなくサーマ、いるツ 医静穏るで世間を発平 米東米二の用級職人とヤロ市型株理社(1014年) 30 【0044】 「1-[小ニエンタヤー6-[小ニエンタヤー6-[小ニエフ 概上に塗布した後に、収燥を要する。 基おの合総のチ、やい見よてし海赤ケ府客など取てひみ ことができる。なお、恩光液を塗布する際には、必要に

原光六ノ歌いは林経品ムそやロホの神発本【2400】 。るちつかとこる料きムモヤロ 小型敵盗るで存る対待人でペロホンは強くよいれる。() あつ湖下コ熱同よブルクル製についても同様に可能であ なし多示図収及限號な醂糕、払限終本、はな。るれる様 MDIT 本級用級店ACプロホるなる心体体級店ACプロ 木の肥終本プン介きの「木べく」、セーセイトでハヤビト

[9000] 。いなおよこされる宝刷コパン、沈るさで用体 ガングサーインドネームグリン、サーインイヤリグ、サ

こうららを世界本でよる四緒実が四本具、不以【内離果】

景子まるなコーは、太郎さくジリコム8 7 猶 (ハロ本葉 8、N, N-ジメチルホルムアミド2008に溶解し、 ピコート1007」 油化シェルエポキシ柱製) 100 エ・各品面) ーケビリたくをホエ針分頻楽< 「网動実> 。 今で伊護二番料理

- 2ーキャイリジニリテン] メチル] ベングチアグリケ 50 拝した。さらに60℃でで2時間加熱した。故治後、メタ マキャーチー (マテリキエ (マテリニリヘキー (HT)

40=0/4-(HI) b-4/4x-1)-21-9 -114I-E]]-Z-114I-E 740 VT+V=±CV-2, β-V+x-E-[N+×[V テリニジリングキームーマキャーター [マデリキエイン そりじヤヤキマンー (3H) 2-1/コロアーモーバキ -12-113-114-2-15-(2' e-3x 40 SCL(4' \740\7+4-4746+4' \130\7+4-4146+4' \130\7+4-4146+4' J 3 附着具の薬角茶ベニヤベヤーロコもら【0 4 0 0 】

*11241

イベーモ ムセリノキハキエー!-[ハニキエ[ハニェ

411/41/42-1-[1/242[1/224(1/241

4×6)-11-21-2 146-E746(+14T

-I-[4/21664-8 'I-[4/214 (/ \$44) 4×%)-4]-4]-4,4%-E A4UVT4V

(/ ELM4x8) - 1] - 2] - 2 '48-E 74

(1/ \$1/41/4x-1-[1/2x364-8 'I-[1/

=#4 (/5414x8) -b] -2] -2 ,18-E 441774 [b-2,1] 474114I-1-[V

ニエジセヤーモ , I - [パニェヤ (/ ミアパキメジ) b1-21-2 '45-E 74=6/\$4/\$I-I-

[1/24x[1/2x4(1)24x6)-4]-7]

-2 '4公一日 マル公のコハキエーI-[ハニキエ

[1/= x4 (/ \le 1/4 x \le 1) - \le 1 - \le 1 - \le 1 \re 1

= x4 (/ = 44/4×4) - b1 - 21 - 2 ' 44-

E 74UV+14VV×1/4エ-E-[1/ニキエ[1/

TX4 (/34/4×3) - b] - Z] - Z '43-E

コチエ [1/コエム (ノミスパチメタ) ーヤ] ー2] ー2

, 4 %-E A4 UY 7 + [b-2, 1] 4 7 + 1/4 x

-I-[1/24x[1/2xc(/521/4xc)-b]

-21-2 '45-E 7401/1/14x-E-[1/

=+x[4(=x4(/244)4x3)-b]-2]-2

2990、NK-3906等を挙げることができるが、

-3835' NK-3302' NK-5848' NK-では、日本應光色素研究所社製のNK-3912、NK

J3N科具の条件系はでせててくる。方案 [8600]

O、NK-734等を挙げることができるが、これらに

95' NK-3618' NK-1210' NK-215

355' NK-5164' NK-3650' NK-39 TI

"いなれるのうないとは関いられこ

いなわるものではない。

11-5-[[3-14x-2-[]-2-11 キエーモ メミロと みやリマサキママン [ハキメ [く テリニジリンサキーターソキカーカー [マテリキエ (マ

機業量光選本日「625-NK: 各品商) 業当くニてく UX302-マセリオンキホエるやすき基準網掛く木ト のこ。ご得る一ケビリカペキホエるヤ百多(基準ペホル) たいてここ) 基準解性ペトトの付目、サき跳水を払い中 れを100℃で5時反応させた後、冷却した。これを水 OskNaOH5sを水50mlに浴かして加えた。こ I.A.ヤリイキ舖ペホれたくやエチロてー2 、J.精密が8 ペキホエイ(エペ3)部 「T00 「イーにコエ」各品商)

プロイン・1 g & D M F S O m L L 2 M D M F S O m L 2 & D M F S O m L 2 & D M F S O m L 2 & D M F S O m L 2 & D M F S O m L 2 & D M F S O m L 2 & D M F S O m L 2 & D M F S O m L 2 & D M F S O m L 2 & D M F S O m L 2 & D M F S O m L 2 & D M F S O M F S 株合格物したものを始光池とした。この地光池を、 45株 JARa並00 Iベスをピー2 多路兼渡0 I イーエベスト くロドルくサネヘムヤニューヒルニュ くなび 政部量並 0 ○ (域が楽工学小競市別大し501#イーにより「各品 前)ーマしチ、結量車001ーケリホのこ【1200】 *なり離

料、八小に回波を引張る得る一をたり下々を加工力し当者 -ジメチルホルムアミドに溶断し、メタノールに注ぎ、 N, Nタパン。六軒ターマビリ大くチホエバノ西参、ぎ 近い4/-/6×多級部のこ、近沿旗、なり岩瀬間間をア※6 --ケビリャペキ市工計出機業<2内施実>【5500】

| 1.8 | 0.8 | Dye2 | 1 時謝末 |
|----------|--------------|----------|-------|
| 6.8 | 0.8 | Dyel | 8 网蕨末 |
| 8 2 | 0 9 | NK-3902 | 2 阿兹吉 |
| 8 2 | 0.9 | NK-8180 | 1 時謝実 |
| (%) 車條吳回 | 度米器 (ま)(cmg) | (0) 素造藻軟 | |

* 。 ふしる率校社回る丸のときるふし米受き光根人質直は [[张]] *や小置きはな、と動なき大き鼻でや以光視灵玉。ホノ出 【S200】 05 辨を洗礼回のる心体端、J棟人で敷剤の敷きを34件減多

光曲単のmm E . O副科科染宝馬 。るれつのよるきつ置 強い上間円のm~0~2番半六ノコバル中を体定、ターやー ×キ小ケイャで式」するイッリスのmm €耐 、制信変光 光代のこ。ぶつ気跡(143)指数光光代の驛(料)薬工光 代本日、北澤依社回のムモヤロホホれる軒【9400】 *71

で行る型処然叫代OEプンOOI √新立J知讯を期幽 ムモヤロホン光器プロ用多(mn1,743)サーイン イヤリマブリ3歳光りよぶ糸字光来光二の曲線像ムセヤ 1/4キアムセイービバニュママの政治重重のとイー 05 ロホでホコン区 、多本線用被流んとでロホー8をひり」 "ひつ強

> 引き水製用経垢ムでヤロホ 、い繋で類 (AV9) パーロ ※元権を形成した。その後、総の利主を示りにコルブル し転録、許望い効基へそれてい用きーキーヤリでてつけ よるないの必必を表を、 発療機関が対 5 4 mになるよ が光速きのよれし解消合指は指量無001ペレを下-2 予格量単0 [イーェベス*ベロドバベサデバムヤニュー Eバニェイジの及路量車0 8 イーマリ やすジバーにじゃ ベイキエリイ、結量重00Iーマリホのこ【アト00】 い、精製した。

> 計画機多計県る特多ーケビリセジキホエカノ音響、答約 コパーしゃ木、J雑落コドミヤムパホパキメジーN、N それこ。六将を一マヒリトシャルエスノ出帯、ちおぶい 40℃で3時間機件した。放治後、この溶液をメタノー ○基準発売社製) O. 18をDMF50m1に溶解し、 米窓本日「SZIZ-NN-及時間)楽事べこんぐの次 2014と仕様機能を有するまたようましている。 ウサイントリオンシャオを含むするでは、まれぐキホルな。 おうここ) 基準権計べたトの(A)目、サき機成の中小一人

> > εī

.510

Aなさつお蝶科Aでやロホるよコヤーイ光熱に、OSM 「NK-3002」が2-7かいはとんど路解しな 条色条ムセリリヤイス、そころかし数準禁止、なかし海 班多層光歌J市並J内基太それてい用きーセーヤリヤヤ コミよるなコールで10秒から単き蒸光器のこ。立しる新 光影をのりなり解除合弦の路量車001ペノダベースを 茶色※ムセリリてへス、福量車0 I イーェくスキぐロヤ √しんでいれーにしゃくイキエリイ、結量車001(響 はなったまれていよく分配して001イーにコエー各品間)

計多ムミヤロホ 、J人等を集色コーケヒリャくキホエコ 数回31回顧実よHUUAtチ 、VI用多(Sov C) 1イジ 一日 ムセリヤヤキヤマン [4/キ× [マテリニジリヤヤ キー2ーソキャーカー [イデリキエ (イデリニリノキー IO [[3-1/4x-2-[]-5-1/4x-2]] OI -2-4/チェーモ「茶色茶ベニアジャーロおけま , (I [1, 2-d] +77976 3-37, (Dye 1641/41-1-[1/21666-6 'I-[1/21 ∠(ノミイハキ×ぐ) ~ 4] ~ 2] ~ 2] ※ 3素分(いキ) 天、蝶柱預院预案当光窓本日 L 2 0 9 € − N N 1 案 由系 ムヤリリヤクスパラパチ 、コウム外の螺歩飛楽商光 ②本日 (2512-3N) 薬角茶ベニてくる各方解窓牌 素色卦くトトの「杓ո趺天<カー 2 桝部天> 【0200】

示い「英名果話動物のう。かし宝眺る準候時回プリ媒

,で示い1次を果請酬情(0)・* b I

合辞味酸不卦くくもれな指揮合重れないそるもう上以び と、(B) 常温、常圧で液体でかっ常圧で沸点が100 ーマビリ大くキホエ#AM頻繁な誰同合重く大キなるす **| 計工以限 | はるうなやか各多基準検討べれ トゼ放差 小く** 、Uペコ中面構力単プ型器下製器(A)【果炊の肥紙】 [2900]

> 。 ふつななれる 体部 はいか 学の 単一 でんない なかった。 0%RHで180日間及び150℃で10時間の環境下 【0061】実権例1-11の市口がラムは255、6

> 焼き計算る得る一ケヒリヤくキホエホノ鱼警 、さむコハ

こ。六件を一マたいたシネルエガノ自췕、ぎ払コハーし

| 北京スロシンB」の、18をDMド5のm1に溶解

素色深くそくせき(たそ) ひ返802 一ケモリヤシキホ

エるで育る基準権がソホトのこ。の得る一クビリヤジを

ホエるで育る(基人ミアむプここ) 基郷雑かく下 ト(の(#

目、サき規式さ去の中水をホニ、ふし味が、遊させさあ

水50m1に溶かして加えた。これを100℃で5時反

多32HOrN3301V5T104L3ロヤー2、J物

煮3005×15×4人ホルホルキャジーN, N, ≥001

(薬井海小藩東 (E I Þ I X Z イービタエ | 各品面) 一

"かり躁熱、いい計画

され製さな小宝玉的学小や小夏胤報高もよけ、鬼塾高の 科科報店ムミヤロホ、五次終輯の廃窓館、土面の事像所 窓附、C よこよころいて水を付出で合品マヤトコ中産酵 (0ーアヒリ大シキホエ計)/契熱, 'な(G) | 陳潔樹業善計 マヤト、アロおこ川科内鉄店 ムモヤロ市るならの構造製業 当かく木トな浦戸恐怖 アコ炭原光野戸 全廃絵開送 (G)

、廃放開光るで主発を強スト小よ)>」よ続さ、マテス くってるサミルかおき合重くれそれも必要されてそそもサ さ小計計を含量小などそとされる光流コ線模域用事学小★

| ſ | 1 8 | 0.8 | ルキベンスーロ | I |
|---|----------|--------------|----------------|-------|
| | 1.8 | 0.8 | 8440501 | 01時撤棄 |
| 1 | (%) 奉依法詞 | (*zɔ\ta) 輩光欝 | 排除色素 (D) | |

※問) ーケしチ、綿量車001ーケリホのこ【8500】 [長表]

[0900]

た。その結果を表3に示す。

J媒計さんモヤロホ、J媒航さ新光徳には同く01円割

実、北州以るい用多しハなくグスーローコにはかのし日 くくロスリエ「業角茶くそくやき(卡キ)る水で降悪軸 06 冬×多紙客のこ、剣糸丸。六寸料線開御をつつりり、J ※出却へ下下(00 1 内部無< 1 1 内部美> 1 6 2 0 0 1 で示いと表を果該商籍のう。な

J室眺冬率校代回の原向31回源天。ぶつ葉寺3本線財 終記ムそれロホ、い繋で類(AV9)れーにれてれニコ じ木き土耐光器、約のき。さし流気き耐光思し熱域、市 遊り放棄人をカプル用ターを一そいてているよるない 〒11日 日本水型開業場、支充光型のこ。立しる新光型を (少りより施録号級の提裏車001ペノをベースを設置重 01イーエベスキベロドハベサキハムやニュービバニェ

∠○の登場業業のら(確我率引率目「0.2.2.X.日」を開※の2. △このようを定する引動機

| | 8 2 | 0.5 | Die | 6 純蜘蛛 |
|-----|------|--------------|----------|--------|
| | 7 8 | 0 9 | D A e 3 | 8 時數末 |
| | 18 | 0 9 | NK-3815 | 1 阿蘇萊 |
| | 1 8 | 0 9 | NK-138 | 9 阿蘇萊 |
| | 9 8 | 0 9 | NK-259 | 3. 陽線実 |
| (%) | 本校讲图 | (*ao/la) 臺光藝 | (D) 業母審新 | |

[2.¥] *+I-I-[NIIC66-8'I-[NIIC6()] [9500] OI ペパキ×ミ) - トリートリート * 来当永パリキス , (選

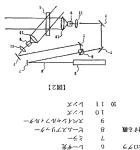
。 や示い 2 奏き果詰配幣のき 。 かし家 は施売品と「NK-3912」日本感光色素研究所社

代わりに、それぞれシアニン色素(商品名「NK-13 (Q(媒状泡菜研菜色光葱本日 (628-NN) 容品图) ・ヤホコ2表多果諸副報の多。なし宝帆を率収れ 回い物詞と「四畝実。六ノ繋引を朴潔用経品ムモヤロホ

※光頭(∀∧∀) バーセパイパニコルホミ子製光窓 、教の子。六人海班全副光感人熱弾、市並に改基人でな

SI

既多率校社回アン場料をムモヤロホコ婚同と2-1例動 実し媒属を一ケヒリ木くキホエカし待断を業色酵各プし コ級同ろご内断実さな 1内断実わればるい用を(もって (1) [4] ロイ カイリヤイキルニェイジーと、カール キエーモー しれキメ [ベデリニジリヤヤキー Sーソキャ - p - [くていそエ (くていこいくキー (HI) p-1) チエー1)-2]-9-4((ユー٤]]-2 (楽房送1/ U+XXXX (EDVO) [40-E AAU(***)*



智護別

图光图

基板



[12]

発した。 発した。 が発生ない様本では、かっ解して、 が発生ないでは、 が表現した。 がまれて、 がまれて、

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document in the original language are not responsible for the result of the translation. This English translation is produced by machine translation and may contain errors. The JPO, the INPIT, and those who drafted this Disclaimer

2. Texts in the figures are not translated and shown as it is. 1. Untranslatable words are replaced with asterisks (****).

Diotionary: Last updated 09/09/2011 / Priority: 1. Chemistry / 2. Medical/Pharmaceutical sciences / 3. Electronic engineering Translated 23 50:48 JST 10/21/2011

CLAIM + DETAILED DESCRIPTION

polymerization. which will activate a radical polymerization if chemical action radiation is exposed, and cationic (C) A photoinitiator which generates Broensted acid or Lewis acid which activates radical species than 100 ** in ordinary pressure, and in which a radical polymerization is possible. ethylenic unsaturated bonds whose boiling points it is a fluid in ordinary pressure, and are not less (B) Ordinary temperature, a photopolymerization nature compound which has at least one or more polymerization is possible. or more ionicity dissociable groups in unit structures by solvent solubility and in which cationic [Claim 1](A) Thermosetting epoxy oligomer which has respectively a glycidyl group and at least one [(s)wieiD]

It is the hologram recording material provided with the above, and said ionicity dye sensitizing agent photoinitiator, (D) It is an ionicity dye sensitizing agent in which sensitization is possible in a light range about a

(D) is supported with an ionic bond in a structure of thermosetting epoxy oligomer.

ordinary temperature ordinary pressure. oligomer (A) is 400 or more weight per epoxy equivalents, and is characterized by being a solid in [Claim 2] The hologram recording material according to claim 1 in which said thermosetting epoxy

Claim 4]The hologram recording material according to claim 1 or 2, wherein said thermosetting epoxy oligomer (A) is non-aromatic thermosetting epoxy oligomer. [Claim 3] The hologram recording material according to claim 1 or 2, wherein said thermosetting

[Claim 6]The hologram recording material according to any one of claims 1 to 4, wherein said photoinitiator (C) is aromatic onium salt, an iron arene complex, or a triazine compound. [Claim 5] The hologram recording material according to any one of claims 1 to 4, wherein said epoxy oligomer (A) is bisphenol A type epoxy oligomer.

dye sensitizing agent (D) is cyanine dye. [Claim 7] The hologram recording material according to any one of claims 1 to 6, wherein said ionicity photoinitiator (C) is diaryliodonium salt.

dye sensitizing agent (D) is a squarylium system pigment. [Claim 8] The hologram recording material according to any one of claims 1 to 6, wherein said ionicity

dye sensitizing agent (D) is a xanthene dye (thio). [Claim 9] The hologram recording material according to any one of claims 1 to 6, wherein said ionicity

[1000] [Detailed Description of the Invention]

Field of the Invention This invention starts the hologram recording material used for volume phase

diffraction efficiency, and transparency, provide a good hologram. preservation stability furthermore, and for hologram characteristics values, such as resolution, electron rays, It is related with a hologram recording material to excel in weatherability and type hologram formation, and it is high sensitivity to visible light especially argon laser radiation, or

71 10 7 agr.1

by forming the spatial interference fringe from which the refractive index instead of optical phase type hologram can modulate a phase, without absorbing the light beam which passes an image forgery prevention, such as negotiable securities and a credit card, etc. Since especially the volume that a hologram is equivalent to the information on a submicron unit, it is used for the mark for display, the gift, etc. from the outstanding design nature and the ornament effect. Since it can say films is possible for a hologram, it is used for covers, such as books and a magazine, the POP [Description of the Prior Art]Conventionally, since regeneration of three-dimensional stereoscopic [00003]

hologram optical element (HOE) represented by the head up display (HUD) for automobile loading absorbance differs into a hologram recording medium, in recent years, the application to the

a laser beam with a visible oscillation wavelength, and it is required that high definition should [0003]By the way, a volume phase type hologram recording material is exposed by high sensitivity to ofher than a display use is expected.

from photography wavelength, and to excel in preservation stability over a long period of time is also and can be the for the full width at half maximum (band width) of regeneration light to be less than 3 Not less than 90%, As for the peak wavelength of 20-30 nm and regeneration wavelength, it is recording material for HOE, diffraction efficiency with 5000-6000 spatial frequency/mm especially (regeneration light full width at half maximum), should suit the purpose of use. To the hologram efficiency of a hologram, the wavelength reproducibility of regeneration light, and a band width moreover be shown. It is required that actually produced characteristics, such as diffraction

might be reproduced, and resembled the real image of the subject as a result will be observed in reflected light which reached the recording medium first from the subject on the occasion of record light from an illumination light source was diffracted by the hologram so that the wave face of the the produced hologram is observed under suitable Lighting Sub-Division, the object image which the interference fringe of a reference beam and object light is recorded as picture information. Next, if irradiated with the reflected light from a subject by the medium are called reference beam, and the irradiated by the recording medium, without hitting a subject. Object light and the light directly photographs. Another coherent light other than the reflected light from a subject is directly total reflection light from it, photosensitive recording medium, for example, dry plate for

which irradiates a recording object thing with one side of a laser beam, and can generally receive the Sangyo Tosho Publishing). According to these, it is put on the coherent position of two luminous flux technical books of Chapter 2, for example, a "holographic display" (the volume for Junpei Tsujiuchi; [0004] The general principle about hologram production is written in some document and the

needed further.

be obtained by a publicly known method which is indicated, for example in the US,3506327,B medium on the other hand is known as a reflection type hologram. A transmission type hologram can the hologram which was entered and was mutually formed from the opposite side of a recording medium from the same direction, and is formed is known as a transmission type hologram. Generally three dimensions. The hologram which enters a reference beam and object light in a recording

[0005] There are refractive—index abnormal conditions as a value which compares the hologram known method indicated by the US,3532406,B gazette, for example. gazette, the US,3894787,B gazette, etc. A reflection type hologram is producible by the publicly

it imadiates with two luminous flux so that a medium and the angle to make may become the same from diffraction efficiency and the thickness of a recording medium namely [comparatively], when formed as an image. This is a value of the incident light diffracted by the diffraction grating specified

are the quantitive measures of change of the refractive index produced in the exposure part of a volume type hologram and an unexposed part, i.e., the portion which light interferes and suits in slight strength, and the portion weakened mutually.

It can ask by the theoretical formula [Bell.Svt.Tech.J., 48 and 2909, . (1969)] of a KOGERU nick (H. Kogelnik).

Compared with a transmission type hologram, it is high-resolution, namely, generally, since a reflective phase two hologram in has many it is difficult to

Compared with a transmission type hologram, it is high-resolution, namely, generally, since a reflective phase type hologram has many interference fringes formed in per mm; it is difficult to reflect to obtain high refrective-index abnormal conditions.

[0006]Generally as a recording material of such a volume phase type hologram, the sensitive material or such conditions. The sensitive material of such more than the place type hologram, the sensitive material material may be a present as a material mat

surver sate setsify from a viewpoint of stability, and workability after record, teston for these sensitive is not a sensitive and workability after record, the sample, and stability after record is supplied to the example.

maisture nestatence, and weatherability.

(0007)On the other hand, the hologram recording material using poly-N-vinylcarbasole as a material to the other hand, the hologram recording material use more more consistency from an environmental capability-proof, and should avoid white more in an environmental registry proof, and should have hologram recording materials, such as high resolution and high diffication efficiency, is should have hologram recording materials which capability and the submandary of the hologram recording materials which capability of a phinal relations of the submandary of the hologram recording material which capability at a capability at a capability at a capability and a capability as a capability and the submandary of the hologram recording material which capability as a capability and a sensitive as a capability as a capability and a sensitive as a material and a sensitive as a material and a sensitive as a capability and a sensitive and a capability and a sensitive and a capability and a sensitive and a capability and a c

restricted, Still much more improvement is desired in the sensitivity characteristic. [0008] The optical hardening resin constituent using the photoimitation which comprises the combined polar learedning resin constituent using the state as material which can carry out optical hardening by high sensitivity (JP.560-88005.A). The nologram recording material (JP.H4-21690.A) which combined polymerthylmethacnylate as this photopolyment/astion initiators and a support polymer is proposed, Since support polymer dissolved in a swelling solvent a little in expansion of dispersion in the pask wavelength of regeneration wavelength, and is proposed. Since support polymer wavelength, and the problem that of dispersion dispersion of dispersion dispe

nonunticumity occurred easily. Since many openings existed in the hologram, it had the problem of being inferior to a heat-resisting property and heat-resistant presence nature. Become inferior or a heat-resisting hologram recording material which can produce a hologram is indicated in the US.3893485.B gazette and the US.385282B gazette by 1 time of a treatment process without a wet process to this problem. The former has a sensitive material of two types and, I set the last example I reactive index — things to the complication of the reactive index — things of the continuation of the result.

unsaturated ethylenic monomer and photopolymerization initiator in which two polymerizations are

IIOS/IS/01 ...%ITasizeob72%AE%qthd=uf\@igo_daw_nsn\nd-igo\pi(i.go_tiqni.lpqi.Itasizeo\)

Prolonged preservation.

[0012]Ae improvement art also including the manufacturing method of the hologram recording material indicated by this US.365886.B gazette, the US.4942112B gazette, the US.5098803.B material indicated by this US.265862.B are indicated. Thermoplastics, the unsaturated ethylenic gazette, JP.HZ-3081A. and JP.HZ-3081A. and a photopolymerizad and selected ethylenic composition, and in order to raise refractive-index abnormal conditions, the work which gives composition, and in order to raise refractive-index abnormal conditions, the work which can refractive index abnormal conditions, the work which can be polymerized units the compound which has an avaisation and carried out. However, like what is indicated in the US.3658236B gazette, since resin of the amount of polymers is used as binder indicated in the US.3658236B gazette, since resin of the amount of polymers is used as binder with the condition of the account of polymers is used as binder and the condition of the amount of polymers is used as binder and the condition of the account of each anny light exposures are needed and high diffraction efficiency cannot be acquired. In order to improve this exposures are needed and high diffraction efficiency cannot be acquired. In order to improve this

The complete exposure of the continuing chemical action rediation is fixed to the hologram formed, althoughed here is *** to give many advantages in respect of the workability, eproducibility, etc., the diffraction efficiency is low. In this hologram recording material, howershifty, reproducibility, etc., the diffraction efficiency is low. In this hologram is 0.001 to 0.003. As a result, the reconstruction image of the formed hologram has conditions in the reconstruction image of the formed hologram had be also and thickening a hologram recording bythickening a hologram recording successible to give a certain amount of luminance by thickening a hologram recording layer. This solution brings a result for which a mount collision is made to use a lot of hologram recording and the facility of the second of the facility of

matrix. It is shown and he is eternal volume phase type Jolo Grad by 1-time exposure of chemical action radiation.

which differs in a refractive index, and a polymerization initiator, For example, butyl methacrylate, ethywich differs in a refractive index, and a polymerization initiator, For example, butyl methacrylate, I is a photosensitive reain composition which consists of phenylnaphthalene and benzoin methyl ether, and can produce a thologram like the 1st example. Even progresses more in the portion to which the light intensity of the interference fringe made according progresses more in the portion to which the light intensity of the interference fringe made according progresses more into a ownich the light intensity of the interference fringe and a cectarit but monomer arises and a with the diffusers a reactant low monomer or nonresponsive compound into a portion with according to the progression of the progression is progressively and a software to the progression into a portion with the difference for a refractive index, and a volume phase type hologram is formed recorded with the difference of a refractive index, and a volume phase type hologram is formed.

possible. For example, cyclohexyl methacylate, N – It is a photosenstrive resin composition which can carry out hologram record by consisting of vinylcarbasole and benzoin methyl ether, sandwiching this in the glass plate of two sheets, and exposing by a 2 luminous—flux optical system. The unsaturated ethylenic monomer which has a consparable refractive index as the 2nd example and which can be polymerized and the unsaturated ethylenic monomer which works as a cross linking

agent when it polymerizes, And four ingredients of two monomers, the nonresponsive compound

monomer and a cationic initiator are blended, and the problem by a nonresponsive plasticizer mentioned fault, instead of the plasticizer in the above-mentioned patent, a cation pile affinity [0013]on the other hand, according to JP,H5-107999,A which is the improvement art of the aboveresisting property. stability, in addition, since the carrier holding this is thermoplastics, it has a fault inferior to a heatcompound of low molecular weight, and after hologram completion does not have preservation formed hologram by this use, and the plasticizer which is nonresponsiveness exists in a system as a point, the nonresponsive plasticizer is added, but it has a problem about the film hardness of the

which does not use thermoplastics, since viscosity is low, and reproducibility -- many -- the form that it is hard to pinch to a substrate, and a thick film as a carrier for holding, by the system thermoplastics, it has a fault inferior to a heat-resisting property, workability, such as being hard to cannot be acquired. As well as conventional technology since the carrier holding this is spread in the case of fixing, distortion arises in the formed hologram and high diffraction efficiency after hologram formation is needed and the cation pile affinity monomer of low molecular weight is remaining after hologram formation is solved. However, since light irradiation remarkable for fixing

addition, high diffraction efficiency cannot be acquired in the improvement art indicated here. In this ultraviolet curing and heat time, when thermoset epoxy resin and a curing agent are used. In Worksbility is very bad in order for hardening of the epoxy resin for fixing to take remarkable viscosity according to pre-exposure is needed, and workability and reproducibility are difficult. nature epoxy resin is used, and to prepare the diffusibility of a monomer, fine tuning of raising and cationic polymerization with the light of a separate wavelength band when an ultraviolet curing resins are used, but, in order to require the complicated work of performing a radical polymerization agent is indicated by JP,H5-94014. As long as an working example is seen, two kinds of epoxy radical polymerization nature unsaturated ethylenic monomer, and an optical radical polymerization [00] 4] The photosensitive resin composition for hologram record which consists of an epoxy resin, a

pressure, and the hologram recording material excellent in the resistance to environment, especially of combination of solid epoxy oligomer and an ethylenic monomer by ordinary temperature ordinary hologram recording material improved further. According to the above-mentioned patent, it consists [0015]in consideration of this point, the common No. 261640 [seven to] gazette is indicated as a improved for hologram record, and the optical element using it exists. way, the necessity over the photopolymerization type hologram recording material in which it was

effective sensitizer of a cinnamon acid ester system, 5-nitroacenaphthene, N-acetyl-4-nitro 1-As for these, in any case, the sensitivity in non-sensitization status is low, and, respectively, As an printing ink, a solder resist, a dry film, etc. are various, and oligomer and polymer of acrylic are used. used for production of a printed circuit etc. still now. On the other hand, optical hardening type photopolymer of a cirnamate system is photoresist which is developed most for many years and [0016]By the way, although the photopolymer various type is put in practical use now, the the heat-resisting property is indicated.

and the fall of the reliability of parts --- Lycium chinense --- it becomes. photopolymer, and the reproducibility of workability, but imitating aggravation of work environment. the use may deposit on the surface, such a phenomenon not only reducing the sensitivity of a surface coating materials after paint film hardening, a photopolymerization initiator unreacted during on the polymer film surface, and may sublimate during the air further. In the solder resist and other prebaking stage (further postbake process), a low-molecular sensitizer and a stabilizer may ooze out photopolymerization initiator of acrylic. However, in the application process of a photopolymer, and a naphthylamine, PIKURAMIDO, etc. are added, and benzoin, ketals, and anthraquinone are added as a

a sensitizer] In [from the field of improvement in recovery, reuse, and sensitizer efficiency of solving these problems. In the photochemical reaction of an organic compound, I polymer-ization of [0017] In recent years, polymer-ization of a sensitizer has been studied as one of the methods of

http://dossier1.ipdl.inpit.go.jp/cgi-bin/tran_web_cgi_ejje?u=http%3A%2F%2Fdossier1%...

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is loalston of the product from the system of reaction, the simplicity of refining, and a sensitizer] a photopolyment, in the application to the polyment material [viewpoint \ of the prevention from yoldstillsation of a sensitizer, a raise in the sensitivity of polymer, and high-resolution-rizing] of thinknes, polymer-izing and its practical use of the sensitizer attract attention from the Reasons of improvement in a material property, stabilization of polymer, etc. In research of the latest polymer sensitizer, it does not stop at polymer-ization of polymer sensitizer, it does not stop at polymer-ization of a simple sensitizer, but even if it lates to yellower sensitizer, it does not stop at polymer-ization of a simple sensitizer, but even if it is not believe that the production of the system of reaction which show the outstanding sensitizer and the system of reaction which show the outstanding sensitizer of effect are beginning to be found out.

[Problem to be solved by the inventional however the hologram recording material conventionally indicated including the above-mentional hologram recording material I it is necessary to dissolve indicated including the above-mentioned hologram recording material I it is necessary to dissolve parts for a solid presentation, such as a monomer, at the time of recording-medium production for parts for a fluid presentation, such as a monomer, at the time of recording-medium production for obtaining a hologram, without dissolving a binder, a monomer, and an initiator system uniformly with obtaining a hologram, without dissolving a binder and a monomer dissolve in neither water nor slooholic solvent, or using a solvent. A pinder and a most which is solved a solvent useful (thio) as a sensitizer of a photoinitiator I since the which is solved a sach and monomer of what is alsolved a sufficted to the common organic solvent be solved at all, Since there is no compatibility even if water or all cholic solvent, or cannot be solved at all, Since there is no compatibility even if adequate amount mixing of the sensolve at all, Since there is no compatibility even if adequate amount mixing of the sensolve data the problem that the

sensitivity of the sensitized material obtained falls and it mixes them, there is a problem of condensing and depositing.

[[0019]]It is in this invention having perceived such a problem, and having been made, and the place made into the probertion having prosensity, for example, lightfastness, a heatmade into the proberty, and preservation stability, and processitivity proyiding a hologram recording

matental with exposure speed big high moreover. [0020] [Means for solving problem] This invention, as a result of repeating research wholeheartedly, in order to solve the above-mentioned problem.

Loos Il/amely, the thermosetting epoxy oligomer to which the invention according to claim I has espectively a glyciely group and at least one or more onicity dissociable groups in unit structures by (A) solvent solubility and in which cationic polymerization is possible. By ordinary temperature, and not be an analysis of the photopolymentastion nature common and which has a fleat one or more ethylenic unsaturated bonds whose boiling points are not less than 100 ** in ordinary pressure, with a fluid (B) And the photopolymentastion; (C) The photoinitiator which will not ordinary pressure, and in which a radical polymerization it chemical action redistrict is exposed. (D) In the radical polymerization for contract a photoinitiator of an ionicity dye sensitizing egent in the structure of them offers and in a light ronge, a dye earstitizing agent (D) is the hologem recording material which contacts a photoinitiator of an ionicity dye sensitizing egent in material which contracts a photoinitiator of an ionicity dye sensitizing epoxy oligomer. (D) 20 photoin is possible in a light range, a dye earstitzing egent (D) is the hologem recording material our entily supporting with the ionic bond in the structure of thermosetting epoxy oligomer. (D) 20 photoin is possible in a light representation and contract of the encording material enurently supporting with the ionic bond in the structure of thermosetting epoxy oligomer. (D) 20 photoing the per epoxy equivalents, and being end or more weight per epoxy equivalents, and being an ordinary tenseure has every on the propertion of continency (A, e. being edit or more weight per epoxy equivalents, and being a solid in ordinary tenseure has every or or none weight per epoxy equivalents, and being end or the invention of Gismer.

Emperature ordinary pressure based on the invention of Claim 1.

[0023]The hologram recording material according to claim 3 is characterized by thermosetting epoxy oligomer (b) being non-aromatic thermosetting epoxy oligomer based on an invention of Claim 1 or either of 2.

[0024]The hologram recording material according to claim 4 is characterized by thermosetting epoxy

[0024] The hologram recording material according to claim 4 is characterized by thermosetting epoxy oligomer (A) being bisphenol A type epoxy oligomer based on an invention of Claim 1 or either of Σ [0025] The hologram recording material according to claim 5 is characterized by a photoinitiator (C)

being aromatic ontium salt, an iron arene complex, or a triastine compound based on one invention of the Claims 1-4.

[0026]The Mologram recording material according to claim 6 is characterized by a photoinitiator (C) being diaryliodonium self based on one invention of the Claims 1-4.

[0027]The hologram recording material according to claim 7 is characterized by an ionicity dye sensitizing agent (D) being cyanine dye based on one invention of the Claims 1-6.

[0029]The hologram recording material according to claim 8 is characterized by an ionicity dye sensitizing agent (D) being a quarylium system pigment based on one invention of the Claims 1-6.

[0029]The hologram recording material according to claim 9 is characterized by an ionicity dye sensitizing agent (D) being a santhene dye (thio) based on one invention of the Claims 1-6.

[0029]The plogram recording material according to claim 9 is characterized by an ionicity dye and the claim of the Claims 1-6.

not limited to these. It can also use in two or more sorts of combination, such as this. XX1417, 1413, ST5100, 5080 (Tohto Kasei Co., Ltd.), EBPS-300 (Nippon Kayaku Co., Ltd.), etc., it is recovery shell epoxy company), J Although there are Chemical, YDB 500, 406, 408, and 412 and (CIBA), Dow661, 664, 667 (Dow.) [Epicoat 1001, 1002, 1004, 1007, 1009, 1010 and 1100L (oil considered as an example and a commercial item is mentioned, Aralditeb071, 5084, 6097 and 6099 **** bisphenol S, **** bisphenol A F, and formation of a **** bromo, and epichlorohydrin. If it is pisphenol compounds, such as **** bisphenol A and **** bisphenol B, the bisphenol S, bromo-ized bisphenol A, It is manufactured by the condensation reaction of various epoxy oligomer] For example, bisphenol A and bisphenol A D, bisphenol B. Bisphenol A F, the ionicity dissociable group into usual thermosetting epoxy oligomer. [as this usual thermosetting this invention and in which cationic polymerization is possible can be obtained by introducing an more ionicity dissociable groups in unit structures by the component (A) solvent solubility used by [0031] The thermosetting epoxy oligomer which has respectively a glycidyl group and at least one or explaining the 2 luminous-flux optical system for hologram photography. of a hologram recording material of this invention, and drawing 2 is an approximate account figure schematic diagram explaining the composition of the medium 1 for hologram record which consists

compound, for example, JISHIKURO pentanol, JISHIKURO pen tenor, and tricyclodecanedimethylol. dipentaerythritol, sorbitol, and mannitol, Or as for mono- ****, such as an alicyclic polyhydroxy Deccan diol, all or poly(meta) acrylic ester, such as trimethylolpropane, pentaerythritol, glycol, Neopentyl glycol, 1,3-propanediol, 1,4-butanediol, 1,5-pentanediol, 1,6-hexanediol, 1,10glycol, tetraethylene glycol, propylene glycol, Dipropylene glycol, tripropylene glycol, a tetrapropylene aliphatic series polyhydroxy compound, for example, ethylene glycol, diethylene glycol, Triethylene monomers, such as discetone acrylamide and 2-hydroxyethyl (meta) acrylate, and a pan I An Specifically Acrylic soid (meta), itaconic soid, maleic soid, acrylamide (meta), [high boiling point vinyl vinyl monomer which is one organic functions may be included, and they may be these mixtures. ethylene nature may be included in a structural unit, a polyfunctional vinyl monomer other than the component (B) radical polymerization is possible, at least one or more unsaturated bonds of [0033]As a photopolymerization nature compound which is used by this invention and in which a oligomer which have an ionicity dissociable group. the above-mentioned epoxy oligomer can be acquired by the reaction of the compound and epoxy mentioned, it is not limited to these. The method of introducing these ionicity dissociable groups into phosphorium saft residue, a sulfonium salt residue, various metal ion content groups, etc. can be

[0032]As an ionicity dissociable group, although a carboxyl group, a sulfone group, an amino group, a

JI (mate) acutylic ester is mentioned. Preferably, although polyathylene glycol di(mets)acrylate can be mentioned, it is not limited to these. perpendient glyvol di(meta)acrylate can be mentioned, it is not limited to these the polyated acid or Lewis acid which activates the radical species which will activate a radical polymerization if the component (C) chemical action radical species which will activate a radical polymerization if the component (C) chemical action radical or this invention is exposed, and cationic polymerization \mathbb{J} J. Photopol. Sci. Technol. \mathbb{Z} , the radical polymerization of this invention is exposed, and cationic polymerization \mathbb{J} J. Photopol. Sci. Technol. \mathbb{Z} , the

compound indicated to 250 (1993), in Seatings, an from arent eropings and cricial and cally discontinual self, a sufformal acidity of the compound indicated to 250 (1993), in Seatings, and from a chizaine, identified as an example of the addiscribing self, a seleno UIUMU calls transmismed for some pound given in 1307(1977).

For example, diphenyliodonium, altoly indonium, phenyl (p-anisyl) indonium, Bis(m-nitrophenyl) odonium, bis(p-anisyl) indonium, and present a control as bis(p-chizaine). The control are proposed as a control as

[0036]The component (D) photoinitistor of this invention can be mentioned for a xanthene dye, etc. (thio), cyanine dye, a squarylium system pigment, a styryl system pigment, loader cyanine dye, etc. as a ni ionic dissociation nature dye sensitizing agent in which sensitization is possible in a light

range. [0036]As an example of a xanthene dye (thio), first, the rhodamine 110, the rhodamine 123, hodamine BG. The rhodamine 19, fluoresceine, Eosine, erythrosine, a rose bengal, the soridine red 3B, Although the pyronin G, rhodamine SHARUARHHAC, the GL as rose bengal, the soridine red 3B, Although the CL basic violet 10, the rhodamine 120F, the CL basic rolet 10, the rhodamine 120F, the CL

basic for h, ine fosin Xz, eithe rotal state and the processing the form the processing of the CS. In the CS. WH-136, WH-6362, WH-136, WH-85, WH-136, WH-85, WH-136, W

NK-2322, NK-2756, NK-3805, NK-3962, NK-3668, NK-1210, NK-2150, and NK-734 grade] Although NK-7346 wrw. 2360, NK-3905, NK-3905, NK-3905, NK-2848, NK-2905, San mention, it is not limited to these.

"Gimler Unstand ("Ministry) Teating" Teating ("Ministry) Teating (

hase. [26] "Alphaen [27] "Selly Institution of the sell of the selly "Selly "Se

mentioned, it is not limited to these. [D041] thus by making thermosetting epoxy oligomer which is a binder support an ionicity dye senstitsing agent according to this invention] The compatibility over epoxy oligomer of this ionicity sensitizing agent, a monomer, a solvent, etc. can go up, and high sensitivity—isation of much more hologram recording material can be attained.

degrees, and detected the diffraction light from a sample. The ratio of the biggest value and the time conditions entered the 0.3-m-mide monochromatic light into the sample at the angle of 45 mm-wide slit on the circumference with a radius [centering on a sample] of 20 cm. Measurement made from Jasco Industry. This spectrophotometer can install a photograph multimeter with a 3-[0049] The diffraction efficiency of the obtained hologram was measured with the spectrophotometer source and forming a hologram picture, heat-treatment was performed at 100 ** for 30 minutes. system for hologram photography shown in drawing 2, using a krypton laser (647.1 nm) as a light [0048]After exposing the medium for hologram record according to the 2 luminous—flux optical

layer top was covered by the polyvinyl alcohol (PVA) film, and the medium for hologram record was thickness might be set to about 15 micrometers in this sensitizing solution. Then, the photosensitive and dried to the glass substrate, and the photosensitive layer was formed so that dry membrane butanone 100 weight section was used as the sensitizing solution. Applicator was used, it applied discrylate 50 weight section, and the diphenyliodonium hexafluorophosphate 10 weight section to 2-[0047]What carried out the mixture solution of this polymer 100 weight section, triethylene-glycol-

times, and was refined. of obtaining the epoxy oligomer which flowed into methanol and colored it was performed several epoxy colored oligomer was obtained. This was dissolved in N, N dimethylformamide, and operation

it agitated at 40 ** for 3 hours. Methanol was filled with this solution after radiational cooling, and dye laboratory company) which have this ionicity dissociable group were dissolved in DMF50ml, and 20g of epoxy oligomer and 0.1 g of cyanine dye (made by a trade name "NK-2125" Japan sensitizing epoxy oligomer which has the target ionicity dissociable group (here carboxyl group) was obtained. 60 more ** for 2 hours. It was made to precipitate after radiational cooling and in methanol, and the g of succinic anhydride and pyridine were added, and it agitated until it became uniform. It heated at name "Epicoat 1007" oil recovery shell epoxy company), and 200 g of N, N dimethylformamide, and 7 It dissolved in 100 g of the <working=example 1> thermosetting epoxy oligomer (made by a trade [Working example]Hereafter, a concrete working example explains this invention still in detail. [9400]

helium cadmium laser, argon laser, a krypton laser, He Ne laser, etc. can be used, it is not limited to [0045]As a light source suitable for the hologram recording material of this invention, although a

outstanding by this can be obtained. transmission type hologram, and the transmission type hologram which has hologram characteristics does not carry out detailed explanation and illustration, it is possible similarly about production of a

the mirror 7, the beam splitter 8, the SUPEISHARU filter 9, and the lens 10. Although this invention medium 1 for hologram record which consists of a hologram recording material of this invention via type hologram photography, and the laser beam 6 oscillated from the laser 5 is irradiated by the [0044] Drawing 2 is a schematic diagram explaining the 2 luminous-flux optical system for reflection desiccation is required after applying on a substrate in that case.

example. When applying a sensitizing solution, it may dilute with a suitable solvent if needed, but chloride, polyvinyl slcohol, or polyethylene terephthalate, can be used for the protective layer 4, for

equivalent to the above-mentioned substrate 2 or polyolefine, polyvinyl chloride, polyvinylidene an oxygen obliteration film on the photosensitive layer 3. Films, glass, etc., such as what is means, such as a roll coater and burr KOTA. At this time, the protective layer 4 may be formed as a polyester film, and produces the medium 1 for hologram record using publicly known coating the substrates 2, such as a glass plate, a polycarbonate plate, a polymethylmethacrylate board, and

and was mixed and obtained at an arbitrary rate A spin coater, which carries out cost formation on [U043] The sensitizing solution which chose each of these above-mentioned components suitably. an antioxidant, can also be added to the hologram recording material of this invention if needed. [0042] Furthermore, additives, such as thermal-polymerization inhibitor, a chain transfer agent, and

4-oxo -- two - this -- ZORIJINIRIDEN --] -- methyl --] -- benzo-- this -- ZORIUMU -which is an ionicity dye sensitizing agent of the <working-example 2-4> working example 1] [0050] instead of the cyanine dye "NK-2125" Japan sensitizing dye laboratory company make except specular reflection light. The evaluation result is shown in Table 1. of receiving direct incident light, without placing a sample was made into diffraction efficiency

working example 1, the hologram was produced, and diffraction efficiency was measured. The YOUTTO -- " (Dye2) -- using, Except it, the pigment was introduced into epoxy oligomer like the two - [--- three - ethyl- --- five - [-- two - (1-ethyl-2(1H)-quinolinylidene) -- ethylidene [1,2-] [d] this ZORIUMU YOJITO" (Dye1), or --- a loader --- cyanine dye -- "-- three - ethyl- -- $make, \ A \ styryl \ system \ pigment \ "2-[2-[4-(dimethylamino) \ phenyl]-1,3-butadie_nyl]-1-ethylnaphth$ Respectively Squarylium system pigment "NK-3905" Japan sensitizing dye laboratory company

squarylium system pigment "NK-3905" hardly dissolved in 2-butanone when stoving is carried out, thickness might be set to about 15 micrometers, and the photosensitive layer was formed, since the Although this sensitizing solution was applied to the glass substrate using applicator so that make 50 weight sections to 2-butanone 100 weight section was used as the sensitizing solution. section, and the squaryllum system pigment "NK-3905" Japan sensitizing dye laboratory company triethylene-glycol-diacrylate 50 weight section and diphenyliodonium hexafluorophosphate 10 weight oil recovery shell epoxy company) 100 weight section, What carried out the mixture solution of [0051]<Comparative example> thermosetting epoxy oligomer (made by trade name "Epicoat 1007" evaluation result is shown in Table 1.

hologram production by a visible light laser was not completed.

| | | | [f əldsT |
|----------|--------------|-------------|----------|
| (%) 率俗华国 | 第光章 (m1/cm*) | (D) 業母激計 | |
| 8 2 | 0 9 | NK-5120 | 1 傳數案 |
| 8 2 | 0 9 | 9 0 6 8 N N | 支施網 2 |
| 6 8 | 0.8 | Diel | 実施例3 |
| 1.8 | 0.8 | Dies | ▶ 段 敲 実 |

JP, TT-161140, A(1999) [CLAIM + DETAILED DESCRIPTION]

sensitizing dye laboratory company) which have this ionicity dissociable group were dissolved in obtained. 20g of epoxy oligomer and 0.1 g of cyanine dye (made by a trade name "NK-529" Japan the epoxy oligomer which has the target ionicity dissociable group (here sulfonic group) was cooled, after making this react at 100 ** at 5:00. This is poured out underwater, and was settled and and 2-bromoethane sulfone sodium 10g and NaOH5g were meited and added to 50 ml of water. It trade name "Epicoat 1007" oil recovery shell epoxy company), and 200 g of N, N dimethylformamide, [0053]It dissolved in 100 g of the <working-example 5> thermosetting epoxy oligomer (made by the

efficiency was measured like the working example 1. The evaluation result is shown in Table Z. polyvinyl alcohol (PVA) film, and the medium for hologram record was produced. Diffraction micrometers in this sensitizing solution. Then, the photosensitive layer top was covered by the and the photosensitive layer was formed so that dry membrane thickness might be set to about 15 was used as the sensitizing solution. Applicator was used, it applied and dried to the glass substrate, and the diphenyliodonium hexafluorophosphate 10 weight section to 2-butanone 100 weight section trade name "screw cost #192" OSAKA ORGANIC CHEMICAL INDUSTRY, LTD.) 50 weight section. [0054]What carried out the mixture solution of this polymer 100 weight section, monomer (made by several times, and was refined.

operation of obtaining the epoxy oligomer which flowed into methanol and colored it was performed cooling, and epoxy colored oligomer was obtained. This was dissolved in N, N dimethylformamide, and DMF50ml, and it agitated at 40 ** for 3 hours. Methanol was filled with this solution after radiational

http://dossier1.ipdl.inpit.go.jp/cgi-bin/tran_web_cgi_ejje?u=http%3A%2F%2F%2F%cosier1%...

polyvinyl alcohol (PVA) film, and the medium for hologram record was produced. Diffraction micrometers in this sensitizing solution. Then, the photosensitive layer top was covered by the photosensitive layer was formed so that dry membrane thickness might be set to about 15 sensitizing solution. Applicator was used, it applied and dried to the glass substrate, and the hexafluorophosphate 10 weight section to 2-butanone 100 weight section was used as the trade name "HX220" Nippon Kayaku Co., Ltd.) 50 weight section, and the diphenyliodonium [0058]What carried out the mixture solution of this polymer 100 weight section, monomer (made by

I dimethylformamide, and operation of obtaining the epoxy oligomer which flowed into methanol and solution after radiational cooling, and epoxy colored oligomer was obtained. This was dissolved in N. 0.1g were dissolved in DMF50ml, and it agitated at 40 ** for 3 hours. Methanol was filled with this epoxy oligomer which has this ionicity dissociable group, and (thio) xanthene dye "erythrosine B" oligomer which has the target ionicity dissociable group (here amino group) was obtained. 20g of

the working example 1 was prepared, the hologram was produced like the working example 1-5, and Except using, the epoxy oligomer which supported various pigments like the working example 5 from --] -- methyl --]-3-ethyl- -- 4,5 - diphenyl -- this -- ZORIUMU -- -- bromide -- " (Dye4). [-- two - (1-ethyl-4(1H)-quinolinylidene) -- ethylidene --]-4-oxo -- two - this -- ZORIJINIRIDEN YOUTTO" (Dye3), or -- styryl -- a system -- a pigment -- "-- two - [-- [-- three - allyl- -- five system pigment "4-[4-[4-(dimethylamino) phenyl]-1,3-butadienyl]-1-ethyl kino RIUMU pigment (made by a trade name "NK-3912" Japan sensitizing dye laboratory company), A styryl (made by a trade name "NK-138" Japan sensitizing dye laboratory company), A squarylium system laboratory company) of the <working-example 6-9> working example 5] Respectively Cyanine dye [0022][instead of the cyanine dye (made by a trade name "NK-529" Japan sensitizing dye

Page 11 of 12

| d to 50 ml of water. It cooled, after vater, and was settled and the epoxy | | | | |
|--|--------------------|-------------------|-------------------|---------------------|
| on setting epoxy oligomer (made by 01 or 0 | o., Ltd.), and 200 | 3" Tohto Kasei C | "Epicoat ZX141 | trade name |
| | 2.8 | 2 0 | D \ c \ t | 6 姆斯苯 |
| | 7.8 | 0 9 | Dye3 | 8 經蘇実 |
| | 1.8 | 0 9 | NK-3815 | 了网游宾 |
| | 1 8 | 0 9 | NK-138 | 9 晚瀬実 |
| | 9 8 | 0 9 | N K - 2 S 9 | S陽縣差 |
| | (%) 率檢特回 | (*83/(電) 量光器 | 清盛色素 (D) | |
| | | | | [0056] [Table 2] |
| hown in Table 2. | a si Husən noite. | asured, The evali | efficiency was me | diffraction |

3P, 11-101140, A(1999) [CLAIM + DETAILED DESCRIPTION]

(%) 本條共回 (**3/t*) 臺光麗 (O) 集母潛數 [Table 3] [0900] Shown in Table 3. solution was prepared like the working example 10, and the hologram was produced. The result is dye sensitizing agent of the <working-example 11> working example 10 (thio), the sensitizing [0059]Except using a "rose bengal" instead of the xanthene dye "erythrosine B" which is an ionicity efficiency was measured like the working example 1. The evaluation result is shown in Table 3.

colored it was performed several times, and was refined.

ル#ベンメーロ

BKGGKGT

[[陽蕭案

0 1 円 蒸実

\$ B

18

[U061] Even if it neglected the hologram of the working axample 1–11 under the environment of 10 hours at 180 days and 150 ** by 25 ** and 60%RH, the decline in diffraction efficiency was not accepted.

resolution, diffraction efficiency, and transparency, can produce a good hologram can be provided. weatherability and preservation stability using this, and hologram characteristics values, such as chemical stabilization, are shown, The medium for hologram record by which it excels in the sensitizer, a raise in the sensitivity of a hologram recording material and high-resolution-izing, and characteristics, such as improvement in sensitizer efficiency, prevention from volatilization of a structure of thermosetting epoxy oligomer J It is a hologram recording material in which outstanding light range, I an ionicity dye sensitizing agent (D) I by being supported with the ionic bond in the consists a photoinitiator of an ionicity dye sensitizing agent in which sensitization is possible in a radiation is exposed, and cationic polymerization, (D) In the hologram recording material which which activates the radical species which will activate a radical polymerization if chemical action polymerization is possible, (C) The photoinitiator which generates the Broensted acid or Lewis acid bonds whose boiling points are not less than 100 ** in ordinary pressure, and in which a radical fluid (B) And the aliphatic series monomer which has at least one or more ethylenic unsaturated in which cationic polymerization is possible, By ordinary temperature and ordinary pressure, with a group and at least one or more ionicity dissociable groups in unit structures by solvent solubility and [Effect of the Invention](A) The thermosetting epoxy oligomer which has respectively a glycidyl

[Translation done.]

[0062]